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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/503,765	02/14/2000	Hi-Chan Moon	678-455(P9161)	7130

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Paul J. Farrell Esq.
Dilworth & Barrese
333 Earle Ovington Boulevard
Uniondale, NY 11663

EXAMINER	
WARD, RONALD J	

ART UNIT	PAPER NUMBER
2681	6

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/503,765	Applicant(s) MOON ET AL.	
	Examiner Ronald J Ward	Art Unit 2681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2681.

2. The Applicant is advised that the following rejection is a verbatim copy of the rejection found in the previous office action. A response to Applicant's arguments is also provided below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hibino (U.S. Patent Number 5,444,862) in view of Sunay et al. (U.S. Patent Application Publication Number 2002/0082019).

As to **claim 1**, Hibino discloses, in Figures 3 and 6, a mobile station device for controlling transmission in a mobile communication system, comprising:

a measurer (21 in Fig. 3) for detecting a channel signal received on a forward link channel and measuring a reception strength (RSSI) of the received channel signal;

a controller (41 in Fig. 6) for comparing the reception strength with a threshold and generating a signal for controlling transmission on a reverse link depending on the comparison (see col. 6 lines 36-61); and

a reverse link transmitter (63) for stopping channel transmission on the reverse link in response to the transmission control signal (see col. 9 lines 2-17).

However, Hibino fails to explicitly disclose using a detected power control bit for measuring reception strength. Hibino simply prescribes measuring the strength of received radio waves (see col. 1 lines 49-53) or a received radio frequency signal (see col. 5 lines 10-13), and is silent as to which particular bits in the received signal are used.

In an analogous art, Sunay discloses a mobile station device for controlling transmission in a mobile communication system comprising a measurer for detecting a power control bit from a channel signal received on a forward link channel (pilot signal) and measuring a reception strength of the received channel signal using the detected power control bit. Paragraphs 31 and 32 disclose the detection of power control bits and paragraph and paragraph 51 discloses measuring the reception strength of the pilot signal that includes the detected power control bit, which inherently entails using the detected power control bit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hibino to use a detected power control bit for measuring reception strength, as taught by Sunay. One of ordinary skill in the art would have been motivated to make this modification because the pilot signal, which includes the power control bit, is transmitted continuously whether data traffic is being transmitted or not.

As to **claim 9**, it is considered that the apparatus of claim 1 carries out the method of claim 9.

5. **Claims 2 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination system of Hibino and Sunay as applied to claim 1 above, and further in view of Posti et al. (U.S. Patent Number 6466794).

As to **claim 2**, Hibino fails to explicitly disclose that the forward link channel is transmitted in a discontinuous transmission mode. In an analogous art, Posti discloses a forward link channel that is transmitted in a discontinuous transmission mode (see abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination system of Hibino and Sunay to include this discontinuous transmission mode, as taught by Posti, for the purpose of reducing power consumption and lowering network interference levels (see col. 1 lines 25-31 in Posti).

As to **claim 10**, it is considered that the apparatus of claim 2 carries out the method of claim 10.

6. **Claims 3 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination system of Hibino, Sunay, and Posti as applied to claim 2 above, and further in view of Hall (U.S. Patent Number 5491717).

As to **claim 3**, Hibino and Sunay fail to explicitly recite that the reception strength measurement is a signal-to-noise ratio (SNR) calculated using the power control bit. Hibino discloses using RSSI measurements and Sunay discloses using signal strength (see paragraph 14).

In an analogous art Hall discloses using a SNR measurement of the forward link channel for purposes of stopping transmission on a channel (see abstract and see col. 7 lines 5-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination system of Hibino, Sunay, and Posti to use a SNR measurement of Sunay's pilot signal, as taught by Hall. One of ordinary skill in the art would have been motivated to make this modification because SNR measurements are more accurate than RSSI measurements in assessing channel quality.

As to **claim 11**, it is considered that the apparatus of claim 3 carries out the method of claim 11.

7. **Claims 4 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination system of Hibino and Sunay as applied to claim 1 above, and further in view of Hall.

As to **claim 4**, Hibino fails to explicitly disclose generating the transmission control signal based on an average value of reception strength.

In an analogous art, Hall discloses using a mean received SNR to generate a transmission control signal that terminates transmission if the mean value is smaller than a threshold (see col. 7 lines 5-15). Taking a mean is equivalent to accumulating values for a predetermined period and averaging the accumulated values.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination system of Hibino and Sunay to use an average value of reception strength, as taught by Hall for the purpose of avoiding erratic stopping of the transmission (see col. 7 lines 54-56 of Hall).

As to **claim 12**, it is considered that the apparatus of claim 4 carries out the method of claim 12.

8. **Claims 5 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Koshino (U.S. Patent Number 6169909) in view of Sunay.

As to **claim 5**, Koshino discloses, in Figures 1-3, a mobile station device for resuming communication in a reverse link transmission suspended state in a mobile communication system, comprising:

a measurer (32 in Fig. 3) for detecting a channel signal received on a forward link channel and measuring a reception condition of the received channel signal;

a controller (32) for comparing the reception condition with a threshold and generating a signal for resuming transmission on a reverse link depending on the comparison (see 5 lines 55-62, col. 6 lines 11-15 and lines 35-40, also see step 718 in Fig. 7); and

a reverse link transmitter (2 in Fig. 2) for resuming channel transmission on the reverse link in response to the transmission resuming signal (see col. 6 lines 41-47, also see step 720 in Fig. 7).

However, Koshino fails to explicitly disclose using a detected power control bit for measuring reception strength. Koshino teaches measuring the reception condition (see col. 4 lines 8-15), and is silent as to which particular bits in the received signal are used to measure the condition.

In an analogous art, Sunay discloses a mobile station device for resuming transmission (after handoff) in a mobile communication system comprising a measurer for detecting a power control bit from a channel signal received on a forward link channel (pilot signal) and measuring a reception strength of the received channel signal using the detected power control bit (see paragraphs 30, 31, 51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Koshino to use a detected power control bit from a pilot signal for measuring reception strength, as taught by Sunay. One of ordinary skill in the art would have been motivated to make this modification because the pilot signal, which includes the power control bit, is transmitted continuously from various base stations whether data traffic is being transmitted or not. Furthermore, this modification would enable Koshino's device to perform handoffs when the signal quality deteriorated sufficiently.

As to **claim 13**, it is considered that the apparatus of claim 5 carries out the method of claim 13.

9. **Claims 7-8, 15-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination system of Koshino and Sunay as applied to claim 5 above, and further in view of Hall.

As to **claim 7**, the combination system of Koshino and Sunay disclose everything as applied to claim 5 above. However, Koshino and Sunay fail to explicitly recite that the reception strength measurement is a signal-to-noise ratio (SNR) calculated using the power control bit. Koshino discloses measuring reception conditions (see col. 4 lines 8-15) and Sunay discloses using signal strength (see paragraph 14).

In an analogous art Hall discloses using a SNR measurement of the forward link channel for purposes of controlling transmission on a reverse channel (see abstract and see col. 7 lines 5-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination system of Koshino and Sunay to use a SNR measurement

of Sunay's pilot signal, as taught by Hall. One of ordinary skill in the art would have been motivated to make this modification because SNR measurements are more accurate than signal strength measurements in assessing channel quality.

As to **claim 8**, the combination system of Koshino and Sunay disclose everything as applied to claim 5 above. However, Koshino and Sunay fail to disclose using an average value of reception strength.

In an analogous art, Hall discloses using a mean received SNR to generate a transmission control signal that controls transmission (see col. 7 lines 5-15). Taking a mean is equivalent to accumulating values for a predetermined period and averaging the accumulated values.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination system of Koshino and Sunay to use an average value of reception strength, as taught by Hall for the purpose of avoiding erratic behavior of the transmission (see col. 7 lines 54-56 of Hall).

As to **claim 15**, it is considered that the apparatus of claim 7 carries out the method of claim 15.

As to **claim 16**, it is considered that the apparatus of claim 8 carries out the method of claim 16.

10. **Claims 6 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination system of Koshino and Sunay as applied to claim 5 above, and further in view of Posti et al.

As to **claim 6**, Koshino fails to explicitly disclose that the forward link channel is transmitted in a discontinuous transmission mode. For the same reasons as set forth in the

rejection of claim 2 above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination system of Koshino and Sunay to include the discontinuous transmission mode in the forward link, as taught by Posti.

As to **claim 14**, it is considered that the apparatus of claim 6 carries out the method of claim 14.

11. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over Koshino in view of Sunay.

Koshino discloses, in Figure 7, a method of controlling communication on a reverse link in a mobile communication system, comprising the steps of:

measuring a reception condition of the received channel signal (see col. 5 lines 55-58, see step 707 in Fig. 7);

comparing the reception condition with a first threshold and stopping transmission on a reverse link by controlling a reverse link channel depending on the comparison (see col. 5 line 59 through col. 6 line 10, see step 711 in Fig. 7)

measuring a reception condition of a subsequent channel signal (see col. 6 lines 11-15, see step 713 in Fig. 7);

comparing the reception condition of the subsequent channel signal with a second threshold and resuming transmission on the reverse link by controlling the reverse link channel depending on the comparison (see step 720 in Fig. 7).

However, Koshino fails to explicitly disclose using a detected power control bit for measuring reception strength. Koshino teaches measuring the reception condition (see col. 4

lines 8-15), and is silent as to which particular bits in the received signal are used to measure the condition.

In an analogous art, Sunay discloses a mobile station device for resuming transmission (after handoff) in a mobile communication system comprising a measurer for detecting a power control bit from a channel signal received on a forward link channel (pilot signal) and measuring a reception strength of the received channel signal using the detected power control bit (see paragraphs 30, 31, 51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Koshino to use a detected power control bit for measuring reception strength, as taught by Sunay. One of ordinary skill in the art would have been motivated to make this modification because the pilot signal, which includes the power control bit, is transmitted continuously from various base stations whether data traffic is being transmitted or not. Furthermore, this modification would enable Koshino's device to perform handoffs when the signal quality deteriorated sufficiently.

12. **Claims 18 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination system of Koshino and Sunay as applied to claim 17 above, and further in view of Mamaghani et al. (U.S. Patent Number 5794148).

As to **claim 18**, the combination of Koshino and Sunay fail to explicitly recite releasing the reverse link channel and ending the communication if the signal strength of the first channel signal is determined unacceptable more times than a predetermined number for a predetermined time.

In an analogous art, Mamaghani discloses releasing the reverse link channel and ending the communication if the signal strength of the first channel signal is determined unacceptable more times than a predetermined number for a predetermined time (see col. 4 lines 1-11 and lines 21-27).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination system of Koshino and Sunay to release the reverse link channel if the signal strength is determined unacceptable a certain number of times for predetermined time, as taught by Mamaghani. One of ordinary skill in the art would have been motivated to make this modification in the interests of preserving system capacity and time (see col. 3 lines 19-27 of Mamaghani).

As to **claim 19**, the combination system of Koshino, Sunay and Mamaghani discloses everything as applied to claim 18 above. In addition, Sunay inherently discloses returning to the step of detecting a power control bit from a first channel signal. This step is inherent because handoffs are inherently repeated.

Response to Arguments

13. Applicant's arguments filed May 29, 2003 have been fully considered but they are not persuasive.

On page 4, lines 1-7 of Applicant's Response, the Applicant argued that "the PCBs of Sunay are used for controlling power of a closed loop by analyzing strength of the receiving signal on the reverse link and transmitting specific bit information, according to an inherent characteristic of PCB." However, the Examiner could not find a description of PCBs being used for closed loop power control in Sunay.

It is respectfully submitted that the PCBs of Sunay are detected and the detected power control bits are used for measuring a reception strength of the received channel signal (see paragraphs 31, 32, 51, see also claims 1, 10 and 11). This is the case because Sunay's transceiver monitors the strength of received signals that include power control bits. To illustrate this point, Sunay discloses that "[d]ecisions as to when to enter the soft handoff and when to release the weaker signal depend on the relative signal strengths" (see last sentence of paragraph 14). Sunay further discloses that "[a] system in accordance with the principles of the present invention includes... a transceiver [for]...monitoring signals at a mobile station received via the antenna from a plurality of wireless communication network types, determining a best candidate for soft handoff based upon the monitored signals" (see paragraph 24). Later, Sunay discloses that the monitored signals include power control bits (see paragraphs 31, 32). Finally, in paragraph 51, Sunay discloses that the monitored signals (which include detected power control bits) are used for measuring a reception strength of the received channel signal.

On page 5, lines 1-2 of Applicant's Response, the Applicant argued that Sunay does not disclose that PCBs are used as a determining reference to resume a transmission of a receiving side. However, it is respectfully submitted that Sunay's invention is directed to a handoff method, which entails ending transmission with one base station and resuming transmission with another. As illustrated above, the PCBs are used to determine the base stations' relative signal strengths.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald J. Ward whose telephone number is (703) 305-5616. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 5:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost, can be reached at (703)305-4778.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 2600 Customer Service Office at (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

RJW
June 24, 2003

DWAYNE BOST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600